ABSTRACT

In a subterranean well completion a bi-directional signal transmission system includes an in-line acoustic transceiver mounted in a tubing string extending through the wellbore, the transceiver being disposed beneath a hanger structure engaging the tubing string. Via the tubing string the transceiver receives acoustic signals from well parameter sensing apparatus further downhole and converts the received acoustic signals to non-acoustic signals. The resulting non-acoustic signals are then transmitted upwardly through the hanger structure, to a signal receiving location, via cabling. In this manner, the hanger structure does not adversely affect the strength of either upwardly or downwardly transmitted signals traversing it. Alternatively, the acoustic well parameter signals received by the transceiver are converted to electromagnetic signals which pass through the earth, are picked up by a receiver external to the well completion, and then relayed to the receiving location.